

Title (en)

NON-QUENCHED AND TEMPERED STEEL AND MANUFACTURING METHOD THEREFOR

Title (de)

NICHT ABGELÖSCHTER UND GETEMPERTER STAHL SOWIE HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

ACIER REVENU ET NON TREMPÉ ET PROCÉDÉ DE PRODUCTION CORRESPONDANT

Publication

EP 3050991 A4 20170419 (EN)

Application

EP 13894743 A 20131203

Priority

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- CN 2013088377 W 20131203

Abstract (en)

[origin: EP3050991A1] A non quenched and tempered steel and manufacturing process thereof. The process alters the cooling mode before finish rolling in previous production of non quenched and tempered steel; the process at least has a cooling step after the finish rolling step; in contrast to the cooling mode in the prior art which employs the cooling mode of single water cooling or consistent air cooling, the present process utilizes alternate intense cooling and moderate cooling. The intense cooling can ensure the surface temperature of the steel to decrease rapidly; and the moderate cooling allows the core temperature of the steel to dissipate gradually to the surface; a further intense cooling is carried out to allow rapid heat dissipation. The intense cooling and the moderate cooling can be carried out alternately several times according to practical requirement. A water cooling mode combining intense cooling and moderate cooling allows the core temperature and the surface temperature of the steel to become the same within a short time, and thus ensures the uniformity of the mechanical properties of the steel.

IPC 8 full level

B22D 11/00 (2006.01); **B22D 11/04** (2006.01); **C21D 1/60** (2006.01); **C21D 6/00** (2006.01); **C21D 8/02** (2006.01); **C21D 9/00** (2006.01); **C22C 33/04** (2006.01); **C22C 38/02** (2006.01); **C22C 38/04** (2006.01); **C22C 38/06** (2006.01); **C22C 38/08** (2006.01)

CPC (source: EP US)

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Citation (search report)

- [XAYI] JP 2000336460 A 20001205 - NIPPON STEEL CORP
- [IAY] CA 2845611 A1 20130307 - NIPPON STEEL & SUMITOMO METAL CORP [JP]
- [IAY] JP 2000256740 A 20000919 - SUMITOMO METAL IND
- [IAY] CN 101275199 A 20081001 - ADVANCED MANUFACTURE TECHNOLOG [CN]
- [Y] CN 101984091 A 20110309 - UNIV SHANGHAI JIAOTONG
- [YA] CN 103266287 A 20130828 - LAIWU IRON&STEEL GROUP CO LTD
- [A] EP 1905851 A1 20080402 - JFE STEEL CORP [JP]
- See references of WO 2015043057A1

Designated contracting state (EPC)

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